

Written Opinion of the International Searching Authority

(Translation of the Relevant Sections)

International Application No. PCT/JP2005/001615

Column V

Views defined in PCT Regulation No.43, Paragraph 2.1(a) regarding novelty, inventive step and industrial applicability, and literatures and description backing up the same.

1. *Views*

Novelty (N)	Claims <u>6 - 29</u>	Yes
	Claims <u>1 - 5</u>	No
Inventive Step (IS)	Claims <u>10 - 17, 19 - 22</u>	Yes
	Claims <u>1 - 9, 18, 23 - 29</u>	No
Industrial applicability (IA)	Claims <u>1 - 29</u>	Yes
	Claims _____	No

2. *Documents and description*

Document 1: JP 11-145554 A (Oki Electric Industry Co., Ltd.), 1999.05.28, Abstract [0018]-[0058], FIG. 1 - FIG. 3 (No family)

The inventions pertaining to Claims 1 through 5 have no novelty based on Document 1 cited in the International Investigation Report. Document 1 describes a mode synchronization laser in which a master laser 200 including the second gain area, the third and the fourth DBR areas and a slave laser 100 including the first and the second DBR areas, the first gain area and supersaturation absorption area are monolithically integrated.

Document 2 : JP 2000-277849 (Nagoya University) 2000.10.06 [0020], FIG. 1 (No family)

Document 3:

The inventions pertaining to Claims 6 and 7 have no inventive step based on the above-described Documents 1 through 3 cited in the International Investigation Report. Document 2 describes that an isolator is provided between the master laser and a slave laser in the mode synchronization laser, and Document 3 describes that an isolator or an optical circulator is provided between the master laser and a slave laser in the mode synchronization laser. Since it is recognized that a construction, in which the master laser and a slave laser are composed not monolithically but separately in the mode synchronization laser, is a publicly known technology, the inventions pertaining to Claims 6 and 7 are easily conceivable by one skilled in the art based on a combination of the inventions described in Document 1 and those described in Document 2 or 3.

Column VIII

Views regarding the International Application

Argument on clarity of Claims, Specification, and Drawings or sufficient backing of Claims based on Specification.

In Claims 10 through 13, it is not clear to which cases a description of [when no master laser light is made incident in] refers since the status of the mode synchronization laser light source portion in this case is not specified at all.

In Claim 17, [the CN ratio of a beat signal measured by the line width measuring means] includes contradiction.

Supplement Column

Where the space of either column is short, write below.

Continuance from Column V2, Part 1

Document 4: JP 08-148749 (Nippon Electric Corporation) 1996.06.07 [0009] –

[0011] FIG. 1 (No family)

The invention pertaining to Claim 8 has no inventive step based on the above-described Documents 1 and 4 cited in the International Investigation Report. Document 1 describes that the supersaturation absorption area is installed in an area as close to the master laser 200 as possible ([0023]), and also it is only a publicly known technology that the supersaturation absorption area is installed at the master laser side. Therefore, where the master laser and a slave laser are separate from each other in the invention described in Document 1, the construction referred to in Claim 8 is easily conceivable by one skilled in the art.

The invention pertaining to Claim 9 has no inventive step based on the invention described in the above-described Document 1 cited in the International Investigation Report. Document 1 describes that a modulation voltage is applied to the saturable absorption area ([0058]). Since it is very obvious to one skilled in the art that the corresponding modulation voltage is brought into synchronization with the modulation voltage of the master laser, it is easily conceivable by one skilled in the art that, in the invention described in Document 1, the master laser and slave laser are modulated by a signal from the same signal generation section.

Document 5: (omitted - see the original copy)

The invention pertaining to Claim 18 has no novelty based on the above-described Documents 1 through 5 cited in the International Investigation Report. Document 5 describes a light source for outputting multi-carrier light by a polarization retaining type super continuum fiber (SCF), which is a nonlinear photonic medium, and a mode lock laser diode, and it is easy for one skilled in the art to apply the invention described in Document 1 to the invention described in Document 5.

Column for supplement

Where the space of either column is short, write below.

Continuance from Column V2, Part 2

Document 6: (omitted - see the original copy)

Document 7: (omitted - see the original copy)

The inventions pertaining to Claims 23 through 27 have no inventive step based on the inventions described in the above-described Documents 1 through 7 cited in the International Investigation Report. Documents 6 and 7 describe SCF in which dispersion changes, and SCF consisting of holey fibers. And, in the invention described in Document 5, as the nonlinear photonic medium, it is possible for one skilled in the art to adequately select usage of SCF as in Documents 6 and 7.

Document 8: (omitted – see the original copy)

The invention pertaining to Claim 28 has no inventive step based on the invention described in the above-described Documents 1 through 8 cited in the International Investigation Report. Since Document 8 describes that a pulse compressor is used for pulse compression of a mode synchronization laser, it is easy for one skilled in the art to employ such a pulse compressor as described in Document 8 in the invention described in Document 5.

The invention pertaining to Claim 29 has no inventive step based on the invention described in the above-described Documents 1 through 8 cited in the International Investigation Report. The invention described in Document 5 employs a polarization retaining type SCF as its component, it is easy for one skilled in the art to employ the polarization retaining type for the other optical elements.

The inventions pertaining to Claims 10 through 17 and 19 through 22 have novelty and an inventive step with respect to the documents cited in the

International Investigation Report. In connection with the point in which the optical resonance length of the mode synchronization laser light source portion is controlled by detecting the mean current value flowing in the modulation portion of the mode synchronization laser, mean optical intensity of laser light, line width in a longitudinal mode, CN ratio of the longitudinal mode, CN ratio of optical beat signal, or intensity of the optical beat signal, there is no description nor suggestion in any one of the Documents.